Reading Standards for Informational Text 6–12

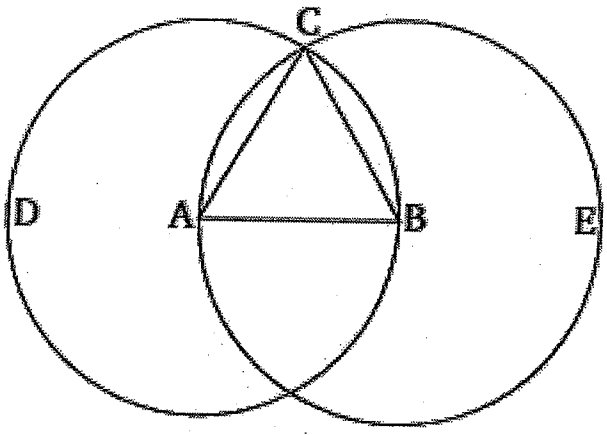
RI

The CCR anchor standards and high school grade-specific standards work in tandem to define college and career readiness expectations—the former providing broad standards, the latter providing additional specificity.

Grades 9–10 students:	Grades 11–12 students:
Key Ideas and Details	
1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
2. Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.	2. Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.
3. Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.	3. Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.
Craft and Structure	
4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).	4. Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines *faction* in *Federalist* No. 10).
5. Analyze in detail how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).	5. Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
6. Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.	6. Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, persuasiveness, or beauty of the text.
Integration of Knowledge and Ideas	
7. Analyze various accounts of a subject told in different mediums (e.g., a person's life story in both print and multimedia), determining which details are emphasized in each account.	7. Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
8. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.	8. Delineate and evaluate the reasoning in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., *The Federalist*, presidential addresses).
9. Analyze seminal U.S. documents of historical and literary significance (e.g., Washington's Farewell Address, the Gettysburg Address, Roosevelt's Four Freedoms speech, King's "Letter from Birmingham Jail"), including how they address related themes and concepts.	9. Analyze seventeenth-, eighteenth-, and nineteenth-century foundational U.S. documents of historical and literary significance (including The Declaration of Independence, the Preamble to the Constitution, the Bill of Rights, and Lincoln's Second Inaugural Address) for their themes, purposes, and rhetorical features.
Range of Reading and Level of Text Complexity	
10. By the end of grade 9, read and comprehend literary nonfiction in the grades 9–10 text complexity band proficiently, with scaffolding as needed at the high end of the range. By the end of grade 10, read and comprehend literary nonfiction at the high end of the grades 9–10 text complexity band independently and proficiently.	10. By the end of grade 11, read and comprehend literary nonfiction in the grades 11–CCR text complexity band proficiently, with scaffolding as needed at the high end of the range. By the end of grade 12, read and comprehend literary nonfiction at the high end of the grades 11–CCR text complexity band independently and proficiently.

3. And if equal things are subtracted from equal things then the remainders are equal.
4. And things coinciding with one another are equal to one another.
5. And the whole [is] greater than the part.

Proposition 1



To construct an equilateral triangle on a given finite straight-line.

Let AB be the given finite straight-line.

So it is required to construct an equilateral triangle on the straight-line AB.

Let the circle BCD with center A and radius AB have been drawn [Post. 3], and again let the circle ACE with center B and radius BA have been drawn [Post. 3]. And let the straight-lines CA and CB have been joined from the point C, where the circles cut one another, to the points A and B (respectively) [Post. 1].

And since the point A is the center of the circle CDB, AC is equal to AB [Def. 1.15]. Again, since the point B is the center of the circle CAE, BC is equal to BA [Def. 1.15]. But CA was also shown to be equal to AB. Thus, CA and CB are each equal to AB. But things equal to the same thing are also equal to one another [C.N.1]. Thus, CA is also equal to CB. Thus, the three (straight-lines) CA, AB, and BC are equal to one another.

Thus, the triangle ABC is equilateral, and has been constructed on the given finite straight-line AB. (Which is) the very thing it was required to do.

Media Text
Translator Robert Fitzpatrick's complete version of Euclid's Elements of Geometry, in bookmarked PDF form, with side-by-side Greek and English text: http://farside.ph.utexas.edu/euclid/Elements.pdf

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✓ **Cannon, Annie J. "Classifying the Stars."** ***The Universe of Stars.*** **Edited by Harlow Shapeley and Cecilia H. Payne. Cambridge: Harvard Observatory, 1926. (1926)**

Sunlight and starlight are composed of waves of various lengths, which the eye, even aided by a telescope, is unable to separate. We must use more than a telescope. In order to sort out the component colors, the light must be dispersed by a prism, or split up by some other means. For instance, sunbeams passing through rain drops, are transformed into the myriad-tinted rainbow. The familiar rainbow spanning the sky is Nature's most glorious demonstration that light is composed of many colors.

The very beginning of our knowledge of the nature of a star dates back to 1672, when Isaac Newton gave to the world the results of his experiments on passing sunlight through a prism. To describe the beautiful band of rainbow tints, produced when sunlight was dispersed by his three-cornered piece of glass, he took from the Latin the word spectrum, meaning an appearance. The rainbow is the spectrum of the Sun.

[...]

In 1814, more than a century after Newton, the spectrum of the Sun was obtained in such purity that an amazing detail was seen and studied by the German optician, Fraunhofer. He saw that the multiple spectral tings, ranging from delicate violet to deep red, were crossed by hundreds of fine dark lines. In other words, there were narrow gaps in the spectrum where certain shades were wholly blotted out.

We must remember that the word spectrum is applied not only to sunlight, but also to the light of any glowing substance when its rays are sorted out by a prism or a grating.

Bronowski, Jacob, and Millicent Selsam. Biography of an Atom. New York: Harper, 1965. (1965)

The birth began in a young star. A young star is a mass of hydrogen nuclei. Because the star is hot (about thirteen million degrees at the center), the nuclei cannot hold on to their electrons. The electrons wander around. The nuclei of hydrogen—that is, the protons—are moving about very fast too. From time to time one proton runs headlong into another. When this happens, one of the protons loses its electric charge and changes into a neutron. The pair then cling together as a single nucleus of heavy hydrogen. This nucleus will in time capture another proton. Now there is a nucleus with two protons and one neutron, called light helium. When two of these nuclei smash into each other, two protons are expelled in the process. This creates a nucleus of helium with two protons and two neutrons.

This is the fundamental process of fusion by which the primitive hydrogen of the universe is built up into a new basic material, helium. In this process, energy is given off in the form of heat and light that make the stars shine. It is the first stage in the birth of the heavier atoms.

Walker, Jearl. "Amusement Park Physics." ***Roundabout: Readings from the Amateur Scientist in Scientific American.*** **New York: Scientific American, 1985. (1985)**
From "Amusement Park Physics: Thinking About Physics While Scared to Death (on a Falling Roller Coaster)"

The rides in an amusement park not only are fun but also demonstrate principles of physics. Among them are rotational dynamics and energy conversion. I have been exploring the rides at Geauga Lake Amusement Park near Cleveland and have found that nearly every ride offers a memorable lesson.

To me the scariest rides at the park are the roller coasters. The Big Dipper is similar to many of the roller coasters that have thrilled passengers for most of this century. The cars are pulled by chain t the top of the highest hill along the track, Released from the chain as the front of the car begins its descent, the unpowered cars have almost no speed and only a small acceleration. As more cars get onto the downward slope the acceleration increases. It peaks when all the cars are headed downward. The peak value is the product of the acceleration generated by gravity and the sine of the slope of the track. A steeper descent generates a greater acceleration, but packing the coaster with heavier passengers does not.

When the coaster reaches the bottom of the valley and starts up the next hill, there is an instant when the cars are symmetrically distributed in the valley. The acceleration is zero. As more cars ascend the coaster begins to slow, reaching its lowest speed just as it is symmetrically positioned at the top of the hill.

A roller coaster functions by means of transfers of energy. When the chain hauls the cars to the top of the first hill, it does work on the cars, endowing them with gravitational potential energy, the energy of a body in a gravitational field with respect to the distance of the body from some reference level such as the ground. As the cars descend into the first valley, much of the stored energy is transferred into kinetic energy, the energy of motion.

Preston, Richard. ***The Hot Zone: A Terrifying True Story.*** **New York: Anchor, 1995. (1995)**
From "Something in the Forest"

1980 New Year's Day

Charles Monet was a loner. He was a Frenchman who live by himself in a little wooden bungalow on the private lands of the Nzoia Sugar Factory, a plantation in western Kenya that spread along the Nzoiz Rover within sight of Mount Elgon, a huge, solitary, extinct volcano that rises to a height of fourteen thousand feet near the edge of the Rift Valley. Monet's history is a little obscure. As with so many expatriates who end up in Africa, it is not clear what brought him there. Perhaps he had been in some kind of trouble in France. Or perhaps he had been drawn to Kenya by the beauty of the country. He was an amateur naturalist, fond of birds and animals but not of humanity in general. He was fifty-six years old, of medium height and medium build with smooth, straight brown hair; a good-looking man. It seems that his only close friends were women who lived in towns around the mountain, yet even they could not recall much about him for the doctors who investigated his death. His job was to take care of the sugar factory's water-pumping machinery, which drew water from the Nzoia River and delivered it to many miles of sugar-cane fields. They say that

U.S. Environmental Protection Agency/U.S. Department of Energy. Recommended Levels of Insulation. http://www.energystar.gov/index.cfm?c=home_sealing.hm_improvement_insulation_table **2010. (2010)**

Recommended Levels of Insulation

Insulation level are specified by R-Value. R-Value is a measure of insulation's ability to resist heat traveling through it. The higher the R-Value the better the thermal per

Zone	Add Insulation to Attic		Floor
	Uninsulated Attic	Existing 3–4 Inches of Insulation	
1	R30 to R49	R25 to R30	R13
2	R30 to R60	R25 to R38	R13 to R19
3	R30 to R60	R25 to R38	R19 to R25
4	R38 to R60	R38	R25 to R30
5 to 8	R49 to R60	R38 to R49	R25 to R30

Wall Insulation: Whenever exterior siding is removed on an

Uninsulated wood-frame wall:

- **Drill holes in the sheathing and blow insulation into the empty wall cavity before installing the new siding, and**
- **Zones 3–4: Add R5 insulative wall sheathing beneath the new siding**
- **Zones 5–8: Add R5 to R6 insulative wall sheathing beneath the new siding.**
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Insulated wood-frame wall:

- **For Zones 4 to 8: Add R5 insulative sheathing before installing the new siding.**

Sample Performance Tasks for Informational Texts: History/Social Studies & Science, Mathematics, and Technical Subjects

- Students *compare the* similarities and differences in *point of view* in works by Dee Brown and Evan Connell regarding the Battle of Little Bighorn, analyzing *how* the authors *treat the same* event and *which details they include and emphasize in their respective accounts.* [RH.9–10.6]
- Students analyze the role of African American soldiers in the Civil War by *comparing and contrasting primary source* materials against *secondary* syntheses such as Jim Haskins's *Black, Blue and Gray: African Americans in the Civil War.* [RH.9–10.9]
- Students *determine the meaning of words* such as *quadrant, astrolabe, equator,* and *horizon line* in Joan Dash's *The Longitude Prize* as well as *phrases* such as *dead reckoning* and *sailing the parallel* that reflect *social aspects of history.* [RH.9–10.4]
- ✓ Students *cite specific textual evidence* from Annie J. Cannon's "Classifying the Stars" *to support* their *analysis of* the scientific importance of the discovery that light is composed of many colors. Students *include* in their *analysis precise details* from the text (such as Cannon's repeated use of the image of the rainbow) to buttress their explanation. [RST.9–10.1].
- Students *determine how* Jearl Walker clarifies the *phenomenon* of acceleration in his essay "Amusement Park Physics," *accurately summarizing* his *conclusions* regarding the physics of roller coasters *and tracing* how *sup-*

calculations, the observers will detect a mismatch between the model's predictions and the way things happen in the real universe. That's the first cue to try again, either by adjusting the old model or by creating a new one.

Media Text
NOVA animation of an Einstein "thought experiment": http://www.pbs.org/wgbh/nova/einstein/relativity/

Calishain, Tara, and Rael Dornfest. *Google Hacks: Tips & Tools for Smarter Searching, 2nd Edition.* Sebastopol, Calif.: O'Reilly Media, 2004. (2004)
From Chapter 1, "Web: Hacks 1–20" Google Web Search Basics

Whenever you search for more than one keyword at a time, a search engine has a default strategy for handling and combining those keywords. Can those words appear individually in a page, or do they have to be right next to each other? Will the engine search for both keywords or for either keyword?

Phrase Searches

Google defaults to searching for occurrences of your specified keywords anywhere on the page, whether side-by-side or scattered throughout. To return results of pages containing specifically ordered words, enclose them in quotes, turning your keyword search into a phrase search, to use Google's terminology.

On entering a search for the keywords:

to be or not to be

Google will find matches where the keywords appear anywhere on the page. If you want Google to find you matches where the keywords appear together as a phrase, surround them with quotes, like this:

"to be or not to be"

Google will return matches only where those words appear together (not to mention explicitly including stop words such as "to" and "or" [...]).

Phrase searches are also useful when you want to find a phrase but aren't sure of the exact wording. This is accomplished in combination with wildcards [...])

Basic Boolean

Whether an engine searches for all keywords or any of them depends on what is called its Boolean default. Search engines can default to Boolean AND (searching for all keywords) or Boolean OR (searching for any keywords). Of course, even if a search engine defaults to searching for all keywords, you can usually give it a special command to instruct it to search for any keyword. Lacking specific instructions, the engine falls back on its default setting.

Google's Boolean default is AND, which means that, if you enter query words without modifiers, Google will search or all of your query words. For example if you search for:

snowblower Honda "Green Bay"

Google will search for all the words. If you prefer to specify that any one word or phrase is acceptable, put an OR between each:

snowblower OR Honda OR "Green Bay"

Kane, Gordon. "The Mysteries of Mass." *Scientific American Special Edition* December 2005. (2005)

Physicists are hunting for an elusive particle that would reveal the presence of a new kind of field that permeates all of reality. Finding that Higgs field will give us a more complete understanding about how the universe works.

Most people think they know what mass is, but they understand only part of the story. For instance, an elephant is clearly bulkier and weighs more than an ant. Even in the absence of gravity, the elephant would have greater mass—it would be harder to push and set in motion. Obviously the elephant is more massive because it is made of many more atoms than the ant is, but what determines the masses of the individual atoms? What about the elementary particles that make up the atoms—what determines their masses? Indeed, why do they even have mass?

We see that the problem of mass has two independent aspects. First, we need to learn how mass arises at all. It turns out mass results from at least three different mechanisms, which I will describe below. A key player in physicists'

Federal Leadership in High Performance and Sustainable Buildings set forth in the Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (2006), and (ii) 15 percent of the existing Federal capital asset building inventory of the agency as of the end of fiscal year 2015 incorporates the sustainable practices in the Guiding Principles;

(g) ensure that, if the agency operates a fleet of at least 20 motor vehicles, the agency, relative to agency baselines for fiscal year 2005, (i) reduces the fleet's total consumption of petroleum products by 2 percent annually through the end of fiscal year 2015, (ii) increases the total fuel consumption that is non-petroleum-based by 10 percent annually, and (iii) uses plug-in hybrid (PIH) vehicles when PIH vehicles are commercially available at a cost reasonably comparable, on the basis of life-cycle cost, to non-PIH vehicles; and

(h) ensure that the agency (i) when acquiring an electronic product to meet its requirements, meets at least 95 percent of those requirements with an Electronic Product Environmental Assessment Tool (EPEAT)-registered electronic product, unless there is no EPEAT standard for such product,

(ii) enables the Energy Star feature on agency computers and monitors,

(iii) establishes and implements policies to extend the useful life of agency electronic equipment, and (iv) uses environmentally sound practices with respect to disposition of agency electronic equipment that has reached the end of its useful life.

Kurzweil, Ray. "The Coming Merger of Mind and Machine." *Scientific American Special Edition* January 2008. (2008)

The accelerating pace of technological progress means that our intelligent creations will soon eclipse us—and that their creations will eventually eclipse them.

Sometime early in this century the intelligence of machines will exceed that of humans. Within a quarter of a century, machines will exhibit the full range of human intellect, emotions and skills, ranging from musical and other creative aptitudes to physical movement. They will claim to have feelings and, unlike today's virtual personalities, will be very convincing when they tell us so. By around 2020 a $1,000 computer will at least match the processing power of the human brain. By 2029 the software for intelligence will have been largely mastered, and the average personal computer will be equivalent to 1,000 brains.

Once computers achieve a level of intelligence comparable to that of humans, they will necessarily soar past it. For example, if I learn French, I can't readily download that learning to you. The reason is that for us, learning involves successions of stunningly complex patterns of interconnections among brain cells (neurons) and among the concentrations of biochemicals known as neurotransmitters that enable impulses to travel from neuron to neuron. We have no way of quickly downloading these patterns. But quick downloading will allow our nonbiological creations to share immediately what they learn with billions of other machines. Ultimately, nonbiological entities will master not only the sum total of their own knowledge but all of ours as well.

Gibbs, W. Wayt. "Untangling the Roots of Cancer." *Scientific American Special Edition* June 2008. (2008)

Recent evidence challenges long-held theories of how cells turn malignant—and suggests new ways to stop tumors before they spread.

What causes cancer?

Tobacco smoke, most people would say. Probably too much alcohol, sunshine or grilled meat; infection with cervical papillomaviruses; asbestos. All have strong links to cancer, certainly. But they cannot be root causes. Much of the population is exposed to these carcinogens, yet only a tiny minority suffers dangerous tumors as a consequence.

A cause, by definition, leads invariably to its effect. The immediate cause of cancer must be some combination of insults and accidents that induces normal cells in a healthy human body to turn malignant, growing like weeds and sprouting in unnatural places.

At this level, the cause of cancer is not entirely a mystery. In fact, a decade ago many geneticists were confident that science was homing in on a final answer: cancer is the result of cumulative mutations that alter specific locations in a cell's DNA and thus change the particular proteins encoded by cancer-related genes at those spots. The mutations affect two kinds of cancer genes. The first are called tumor suppressors. They normally restrain cells' ability to divide, and mutations permanently disable the genes. The second variety, known as oncogenes, stimulate growth—in other words, cell division. Mutations lock oncogenes into an active state. Some researchers still take it as axiomatic that such growth-promoting changes to a small number of cancer genes are the initial event and root cause of every human cancer.

Gawande, Atul. "The Cost Conundrum: Health Care Costs in McAllen, Texas." *The New Yorker* June 1, 2009. (2009)

It is spring in McAllen, Texas. The morning sun is warm. The streets are lined with palm trees and pickup trucks. McAllen is in Hidalgo County, which has the lowest household income in the country, but it's a border town, and a thriving foreign-trade zone has kept the unemployment rate below ten per cent. McAllen calls itself the Square Dance Capital of the World. "Lonesome Dove" was set around here.

McAllen has another distinction, too: it is one of the most expensive health-care markets in the country. Only Miami—which has much higher labor and living costs—spends more per person on health care. In 2006, Medicare spent fifteen thousand dollars per enrollee here, almost twice the national average. The income per capita is twelve thousand dollars. In other words, Medicare spends three thousand dollars more per person here than the average person earns.

The explosive trend in American medical costs seems to have occurred here in an especially intense form. Our country's health care is by far the most expensive in the world. In Washington, the aim of health-care reform is not just to extend medical coverage to everybody but also to bring costs under control. Spending on doctors, hospitals, drugs, and the like now consumes more than one of every six dollars we earn. The financial burden has damaged the global competitiveness of American businesses and bankrupted millions of families, even those with insurance. It's also devouring our government. "The greatest threat to America's fiscal health is not Social Security," President Barack Obama said in a March speech at the White House. "It's not the investments that we've made to rescue our economy during this crisis. By a wide margin, the biggest threat to our nation's balance sheet is the skyrocketing cost of health care. It's not even close."

Sample Performance Tasks for Informational Texts: History/Social Studies & Science, Mathematics, and Technical Subjects

- Students *determine the central ideas* found in the Declaration of Sentiments by the Seneca Falls Conference, noting the parallels between it and the Declaration of Independence and *providing a summary that makes clear the relationships among the key details and ideas* of each text and between the texts. [RH.11–12.2]
- Students *evaluate* the *premises* of James M. McPherson's argument regarding why Northern soldiers fought in the Civil War by *corroborating* the *evidence* provided from the letters and diaries of these soldiers with *other* primary and secondary *sources* and *challenging* McPherson's *claims* where appropriate. [RH.11–12.8]
- Students *integrate* the *information* provided by Mary C. Daly, vice president at the Federal Reserve Bank of San Francisco, with the data presented *visually* in the *FedViews* report. In their analysis of these *sources of information presented in diverse formats*, students frame and *address a question* or *solve a problem* raised by their *evaluation* of the evidence. [RH.11–12.7]
- Students *analyze the hierarchical* relationships between phrase searches and searches that use basic Boolean operators in Tara Calishain and Rael Dornfest's *Google Hacks: Tips & Tools for Smarter Searching, 2nd Edition.* [RST.11–12.5]
- Students *analyze* the concept of mass based on their close reading of Gordon Kane's "The Mysteries of Mass" and *cite specific textual evidence* from the *text* to answer the question of why elementary particles have mass at all. Students explain *important distinctions the author makes* regarding the Higgs field and the Higgs boson and their relationship to the concept of mass. [RST.11–12.1]
- Students *determine the meaning of key terms* such as *hydraulic*, *trajectory*, and *torque* as well as other *domain-specific words and phrases* such as *actuators*, *antilock brakes*, and *traction control used* in Mark Fischetti's "Working Knowledge: Electronic Stability Control." [RST.11–12.4]